

A rotation mechanism for bichromal balls in a twisting ball display is based on electrostatic induction. A bichromal ball with hemispherically differentiated electrical time constants is immersed in a dielectric liquid containing a charge director solution. The liquid is contained within an encapsulant. The charge director solution has positive and negative ions with substantially different mobilities. Space charge clouds created in this fluid upon application of an electric field act so as to induce polarization differently in each hemisphere, leading to a net dynamic polarization. Interaction between the space charge and the induced polarization serves to rotate the ball. Ions are subsequently trapped at the fluid/encapsulant interface due to greater polarizability of the encapsulant. A threshold is obtained by the excess field needed to release the ions and so reverse the ion motion.